

WE CLAIM:

1. A system for collecting a plurality of customer identified products by an attendant, said system comprising:

a customer article selection device for generating a list of the plurality of customer identified products from a product database, said database including a list of products available for selection by the customer; and

a portable collection device processor in communication with the customer article selection device, said device including a display for presenting the list of the plurality of customer selected products and an integrated machine code reader for registering collected ones of said plurality of customer selected products with the integrated machine code reader.

2. The system of claim 1 further comprising a list organizer for presenting the list of the plurality of customer identified products on the display of the portable collection device in an order providing for efficient collection of said products by said attendant.

3. The system of claim 1 wherein the customer article selection device is a computer connected to a central host over a wide area network and said product database is stored on a central computer.

4. The system of claim 3 wherein the wide area network employs an encoded TCP/IP communication protocol.

5. The system of claim 3 wherein the central host includes confirmation software for transmitting an acknowledgement signal to a customer defined address upon receipt of the list of the plurality of customer identified products.

6. The system of claim 5 wherein the acknowledgement signal is an electronic mail message to the predetermined customer address.

7. The system of claim 5 wherein the acknowledgement signal is a telephone communication to the predetermined customer address.

5 8. The system of claim 1 wherein said system further comprises a payment selection processor for collecting payment instructions from the customer.

9. The system of claim 1 further comprising a plurality of machine coded collecting containers, wherein each of the collected articles is placed in a registered one of said machine coded collecting devices and a customer data file is generated for recording the location of each  
10 collected product relative to each of said machine coded collecting terminals.

10. A vehicle cradle for housing a portable terminal in a vehicle used to deliver items to a destination address, said cradle comprising:

a housing for receiving the portable terminal in a fixed location;

a power management system for delivering power to the portable terminal when received in the fixed position;

a communication port for communicating data from the vehicle cradle to the portable terminal; and

a GPS system locator coupled to said communication port for generating a location signal and transmitting said signal to the portable terminal,

20 whereby the location of the vehicle is transmitted to the portable terminal by the vehicle cradle.

11. A home shopping system for selecting items for purchase from a retail store and delivery at home, said system comprising:

an electronic retail store interface for ordering selected items on an automated system over a wide area network;

a customer order processing agent for collecting orders from the electronic retail store interface, said processing agent including:

5 customer verification account software for verifying the identity and order limits of the authorized customer;

customer account data software for recording past purchase histories and customer preferences; and

customer payment processing software for securely recording and verifying authorized customer payment for the selected items; and

a portable data collection terminal for receiving the list of selected items from the customer order processing agent, presenting the list to a store collection attendant and recording collected ones of said list of selected items.

12. The system of claim 11 wherein the selected items include a bar code symbol identifying the selected item and the portable data collection terminal is an integrated terminal having a bar code reader for recording the identity of the list of selected items having the bar code symbol.

13. A system for collecting articles selected by a customer, wherein at least one of said articles has a machine coded label, said system comprising:

20 a list generator for generating a list of the selected articles from an existing database of available articles; and

a portable terminal having a data input means including an integrated machine code reader, a display and a radio for communicating with said list generator, wherein said portable terminal downloads with the radio the list of selected articles and a corresponding code for each of said machine selected articles from the list generator, displays the list of selected articles on the display, and registers each of the machine coded labels on the collected articles as they are collected into the portable terminal with the machine code reader.

14. The system of claim 13 wherein the means for generating a list of the selected items is a password protected computer which is accessible over a wide area network.

15. The system of claim 13 wherein the list generator for generating the list of selected articles comprises:

a database of a plurality of articles available for selection;

a first graphical program for selecting at least one of said plurality of articles on the database and storing said article on the list of selected articles;

a transmission means for transmitting said list of selected articles to a store computer which is in communication with said portable terminal; and

a second computer program for acknowledging receipt of said list by the store computer to a customer.

16. The system of claim 13 further comprising a set of collection units for containing the selected articles during transportation of the selected articles wherein each of said collection units includes a machine coded label and said portable terminal generates a collection list including the contents of each of the collection units by reading the machine coded label of each

on the set of container units with the machine code reader and associating each item registered with the portable terminal with the registered container unit.

17. The system of claim 13 wherein each of container units including the registered ones of the selected articles are delivered to a destination during a time period selected by the customer with the means for generating the list of the selected articles.

18. The system of claim 13 further comprising electronic fund transfer means for authorization of payment of an amount equal to a complete delivery cost of the list of the selected items, wherein the maximum amount due is authorized for collection and delivery of said selected articles and a corresponding final amount equaling the authorized amount less any credits for ones of said selected articles not registered with a portable terminal.

19. The system of claim 13 wherein the means for generating a list includes a related product designation for the contingent selection of a first article dependent on the availability of at least one other selected article.

20. The system of claim 19 wherein the means for generating a list further comprises a recipe list wherein the selection of a recipe automatically adds a plurality of items necessary to complete the recipe to the list of selected articles.

21. A portable terminal for use in a collection facility including a central computer having a radio communication network for transmitting a customer list of a plurality of selected items and a plurality of collection units for the collection of the plurality of selected items on the customer list, said portable terminal comprising:

a radio for receiving the customer list of the plurality of selected items from the central computer over the radio communication network;

a display for displaying the customer list received from the central computer;  
an integrated bar code reader for registering collected ones of said plurality of  
selected items; and

a software program for performing at least the following functions:

- (i) storing the registered items from the customer list;
- (ii) recording the collection unit which receives the registered items;

and

- (iii) marking the registered item as collected.

22. A portable terminal comprising:

a machine code reader for collecting machine coded data;  
a wireless radio for communicating data over a wireless network;  
a TCP/IP stack controller for communicating data over the wireless radio; and  
a voice communication subsystem including an audio transceiver and audio  
management software for converting an audio signal received by the audio transceiver into a  
voice message file for transmission using said TCP/IP stack controller and for identifying and  
converting an audio file received over the TCP/IP stack controller into audio signals using the  
audio transceiver.

23. A method for presenting a list of articles to be located in a known area by an  
attendant, said method comprising the steps of:

- (1) generating a layout of the known area including a location of each article  
on the list of articles to be located;
- (2) entering the location of the attendant in the known area; and

(3) organizing the list of articles to promote the efficient location of the articles in the known area based on the layout of the known area and the location of the attendant relevant to the location of the articles.

24. The method of claim 23 wherein the attendant uses a portable data terminal to enter the location of the attendant in the known area by scanning a bar coded symbol identifying a location within the known area.

25. The method of claim 24 wherein the step of organizing the list of articles employs a straight line path approach to determining the shortest route required by the attendant to collect each of the articles on the list of articles.

26. The method of claim 23 wherein the step of efficiently organizing the list of articles includes the step of identifying the location of the next item to be located by the attendant.

27. The method of claim 23 wherein the step of efficiently organizing the list of articles is repeated after each item of the list of articles is located by the attendant and said method further includes the step of entering the identity of the last item located from the list of articles.

28. The method of claim 28 wherein the list of articles to be collected by the attendant includes a plurality of lists from a plurality of customers, said method further comprising the steps of:

associating each of said plurality of lists to a corresponding container;

presenting the identity of the corresponding container for each article on the list;

and

loading the located article in the container corresponding for that item  
wherein the attendant concurrently and efficiently collects articles for the plurality  
of customers and places the located articles in containers for presentation to each of said  
customers.

5           29.   A system for order fulfillment of an order stored on a central host, said system  
comprising:

a portable terminal having an integrated bar code scanner;

a wireless radio network for communicating the order stored on the central host to  
the portable terminal; and

10           an order kiosk for generating the order and communicating said order to the  
central host.

30.   The system of claim 29 further comprising a security interface for securely  
receiving the order from an authorized customer.

15           31.   The system of claim 30 further comprising an automated teller machine integrated  
into the order kiosk.

32.   A method for updating a customer data file generated by a customer in a self-  
scanning system employing portable self-scanning terminals, said method comprising:

generating the customer data file with a portable terminal having a machine code  
reader and a radio for communicating the customer data file contents over a wireless network;

20           downloading the customer data file to a point-of-sale terminal from a data  
collection controller which transmits the customer data file from the portable terminal received  
over the wireless network; and



updating the customer data file at the point-of-sale terminal to add items on the customer data file which were not included in the customer data file contents transmitted by the portable terminal to the data collection controller.

33. A portable terminal having a display, a radio communication system and a bar code reader, said system comprising:

at least one key for selecting an item by activating the bar code scanner and entering a data file in a memory file associated with said selected item,

at least one key for deselecting an item from said memory file, and

a key for automatically retrieving an information file on the selected item.

34. A portable terminal having an automatic data capture system, a display and a radio for communicating data over a wireless communication system, said terminal including a help key which when depressed generates an operator assistance call request over the wireless communication network.

35. A method for collecting a plurality of items including a machine coded label including a product identifier stored thereon using a portable terminal having an integrated machine code reader, said method comprising the steps of:

(a) generating a list of the plurality of items, said list including the corresponding product identifier for each of said plurality of items;

(b) downloading the list of items into the portable terminal;

(c) displaying the list of items on a display on the portable terminal for selection;

(d) reading and decoding the machine coded label including the product identifier with the integrated machine code reader; and

(e) modifying the list of items to reflect that the item has been collected.

36. The method of claim 35 further comprising the steps of:

5 (a) reading and decoding the machine coded label of a container with the integrated device; and

(b) automatically generating a record of the selected items placed in the previously identified container.

37. The method of claim 35 further comprising the steps of:

10 (a) reading and decoding the machine coded label of a container with the integrated device; and

(b) automatically generating a record of the selected items placed in the subsequently identified container.

15 38. A method of sorting items having corresponding one-dimensional bar codes, said items being presented in a list displayed on a portable data collection terminal, said data collection terminal comprising a bar code reader for reading and decoding the one dimensional bar codes and an encoder for encoding data in the form of a two-dimensional bar code for printing on a printer in communication with said integrated terminal, said method comprising the steps of:

20 collecting the items presented on the list displayed on the display of the portable terminal;

reading the corresponding one-dimensional bar code on the collected items with the bar code reader and retrieving associated information for the collected items;

placing the collected items in a container;

concomitantly at least a portion of the retrieved associated information in a data file and encoding the data file into a two-dimensional bar with the two-dimensional bar code encoder;

printing the two-dimensional bar code on the printer;

placing the two-dimensional bar code on the container holding the collected items.

39. A system for fulfilling orders placed from a remote computer, said system comprising:

a communication network for communicating an order from the remote computer to a central order processor, said order including a customer destination location for delivering completed order;

a portable terminal having a data communication network connection for retrieving the order from the central order processor; and

a delivery vehicle for delivering goods to a customer location, said delivery vehicle including a portable data collection terminal and a vehicle cradle for said portable data collection terminal.

40. The system of claim 39 wherein the vehicle cradle is coupled to a wide area network antenna for communicating signals to the central order processor.

41. The system of claim 39 wherein the vehicle cradle is coupled to a GPS antenna and location processor for deriving the coordinates of the vehicle.

42. The vehicle cradle of claim 10 wherein the cradle further comprises:

an antenna transmitter for transmitting a set of transmission signals  
5 received from the portable terminal over the communication port over a wireless wide area communication network

43. The vehicle cradle of claim 10 wherein the communication port is a wireless communication transceiver.

*Sub E3*  
44. The vehicle cradle of claim 43 wherein the wireless communication port is an infra-red communication transceiver.

*Sub D3*  
45. A vehicle cradle for receiving a portable terminal in a *motorized* vehicle, said cradle comprising:

a battery charger for charging the battery of a portable terminal;  
a portable terminal receiving housing for receiving the portable terminal  
and holding said terminal in a fixed position;  
a communication port for receiving data from the portable terminal; and  
a signal transmitter for transmitting the data received from the portable terminal over a wide area wireless communication network.